GENERAL ASSEMBLY

JAVASCRIPT DEVELOPMENT

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JAVASCRIPT DEVELOPMENT

INSTALLFEST

LEARNING OBJECTIVES

At the end of this class, you will be able to

- Recognize your classmates, instructors, and staff members.
- Differentiate between the Internet and the World Wide Web.
- Summarize the client-server model and explain how a DNS Lookup works.
- Explain the structure of the course and tools that will be used.
- Recognize the benchmarks for assessments in terms of class participation, homework, and unit projects.

LEARNING OBJECTIVES

At the end of this class, you will be able to

- Use Node.js, npm, Git, and other command line tools on your computer.
- Understand common issues that might arise and solutions that will be used during the course.
- Write pseudocode and explain how it relates to programmatic thinking.

AGENDA

Timing	Topic
10 min	Opening & Introductions
15 min	Instructor and student introductions + course structure
20 min	Fundamentals of JavaScript & Web Development, Part 1
5 min	Break
25 min	Fundamentals of JavaScript & Web Development, Part 2
15 min	Set Up Slack
5 min	Break
45 min	Set Up Brew, Git, GitHub, Node, & Text Editors
25 min	Thinking Like a Programmer: Pseudocode
10 min	Final Questions & Exit Tickets

INTRODUCTIONS

- Why does JavaScript interest you?
- What do you hope to get out of this class?
- What is your experience with web development?

COURSE STRUCTURE AND BENCHMARKS

Class	Title	Class	Title
Lesson 0	Installfest	Lesson 11	Advanced APIs
Lesson 1	JS on the Command Line	Lesson 12	Lab Time
Lesson 2	Data Types	**Project 2**	Feedr - Your Personalized Feed Reader
Lesson 3	Conditionals and Loops	Lesson 13	Prototypal Inheritance
Lesson 4	Functions and Scope	Lesson 14	Closures and This
Lesson 5	**Project 1 Lab:** Slackbot	Lesson 15	Intro to Crud and Firebase
Lesson 6	Objects and JSON	Lesson 16	Deploying Your App
Lesson 7	Intro to DOM & jQuery	Lesson 17	Instructor Student Choice
Lesson 8	DOM & jQuery Continued	Lesson 18	Lab Time
Lesson 9	AJAX and APIs	**Project 3**	Your Single Page App
Lesson 10	Asynchronous JS and Callbacks	Lesson 19	Final Project Presentations

JAVASCRIPT AND WEB TECHNOLOGIES

What is web development?

The process of building sites and applications for the Web

JAVASCRIPT AND WEB TECHNOLOGIES

What is front-end development?

The development of client/browser code (HTML, CSS, JS), i.e., what the user sees and interacts with

JAVASCRIPT AND WEB TECHNOLOGIES

What is back-end development?

The development of server-side code that handles such functions as routing, data handling, and databases (Ruby, Python, Java, JavaScript), i.e., the “stuff behind the scenes that makes Web applications work

JAVASCRIPT AND WEB TECHNOLOGIES

How do these fit together?

web development

front-end development

back-end development

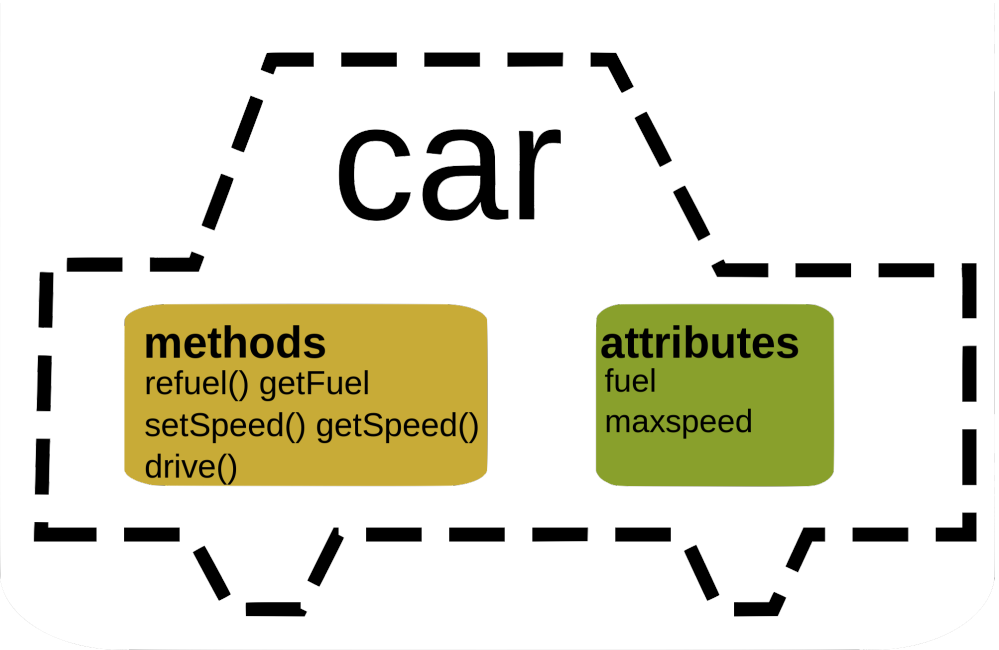
TYPES OF PROGRAMMING

- Action
- Agent-oriented
- Array-oriented
- Automata-based
- Concurrent computing
  - Relativistic programming
- Data-driven
- Declarative (contrast: Imperative)
  - Constraint
    - Constraint logic
      - Concurrent constraint logic
  - Dataflow
    - Flow-based
    - Cell-oriented (spreadsheets)
    - Reactive
  - Functional
    - Functional logic
    - Purely functional
  - Logic
    - Abductive logic
    - Answer set
    - Concurrent logic
    - Functional logic
    - Inductive logic
- Dynamic
- End-user programming
- Event-driven
  - Service-oriented
  - Time-driven
- Expression-oriented
- Feature-oriented
- Function-level (contrast: Value-level)
- Generic
- Imperative (contrast: Declarative)
  - Literate
  - Procedural
- Inductive programming
- Language-oriented
  - Natural language programming
  - Discipline-specific
  - Domain-specific
  - Grammar-oriented
    - Dialecting
  - Intentional
- Metaprogramming
  - Automatic
  - Reflective
    - Attribute-oriented
  - Homoiconic
  - Template
    - Policy-based
- Non-structured (contrast: Structured)
  - Array
- Nondeterministic
- Parallel computing
  - Process-oriented
- Point-free style
  - Concatenative
- Semantic
- Structured (contrast: Non-structured)
  - Block-structured
  - Modular (contrast: Monolithic)
  - Object-oriented
    - Actor-based
    - Class-based
    - Concurrent
    - Prototype-based
    - By separation of concerns:
      - Aspect-oriented
      - Role-oriented
      - Subject-oriented
  - Recursive
- Value-level (contrast: Function-level)
- Probabilistic
- Concept

https://en.wikipedia.org/wiki/Programming_paradigm

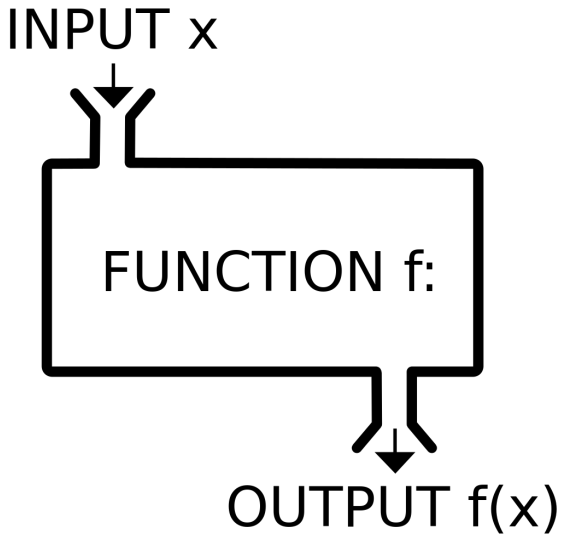
OBJECT ORIENTED PROGRAMMING

- Everything is an object
- Objects have attributes and methods



FUNCTIONAL PROGRAMMING

- Everything is a function
- Mathematical

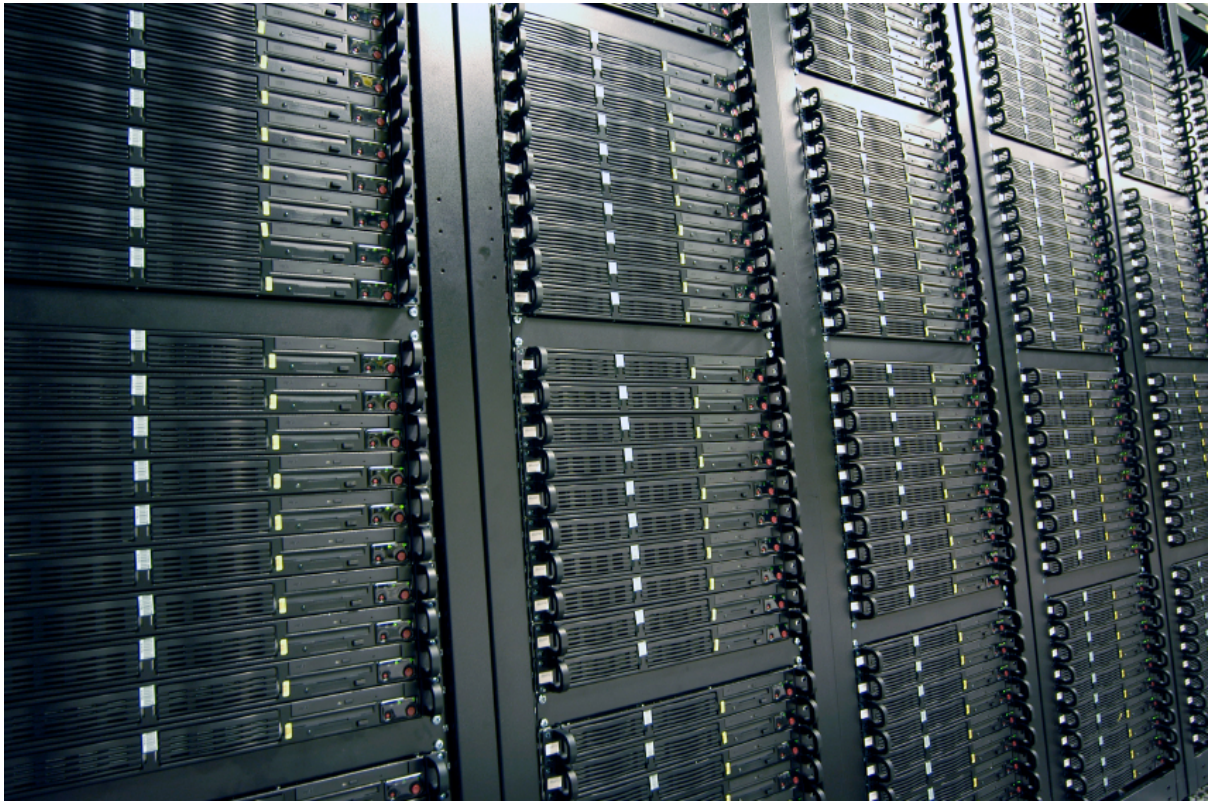


INTERNET VS WORLD WIDE WEB

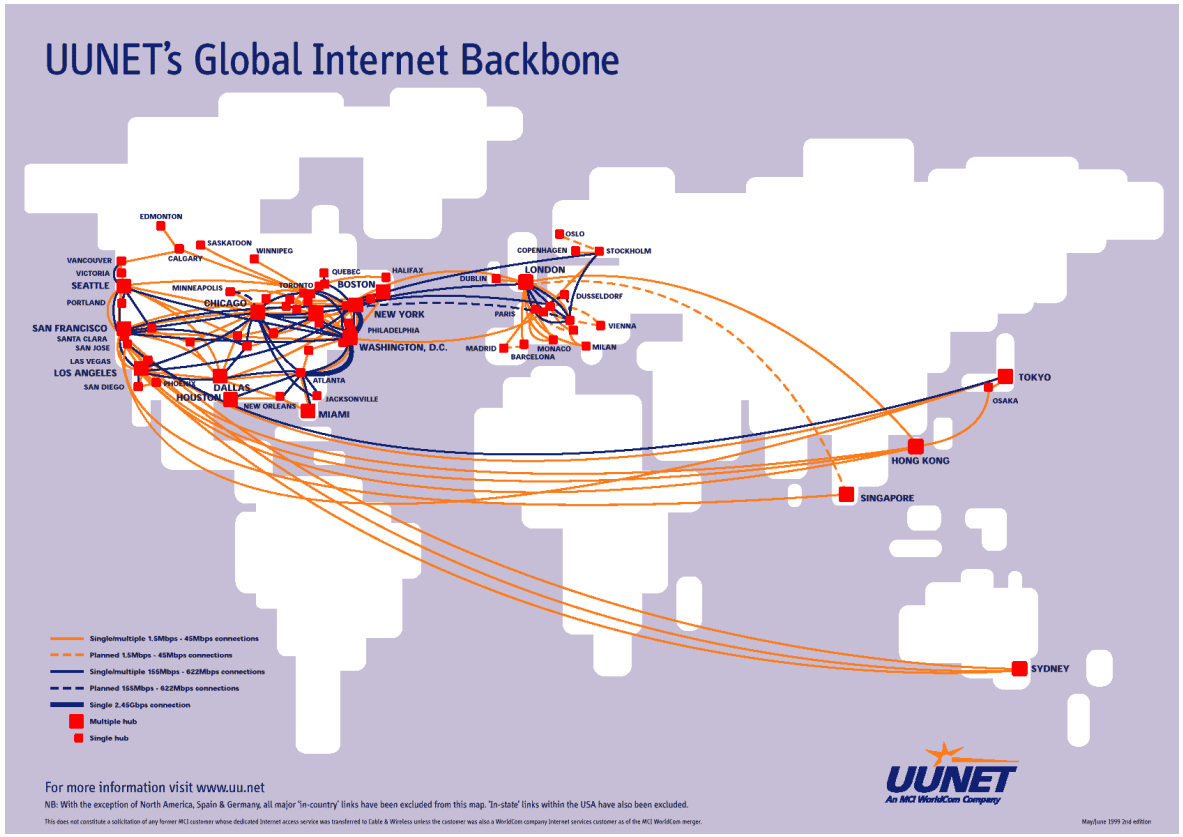
What is the Internet?

The set of interconnected computer networks that serves as the infrastructure to connect millions of computers around the world together. Communication can use any agreed upon protocol.

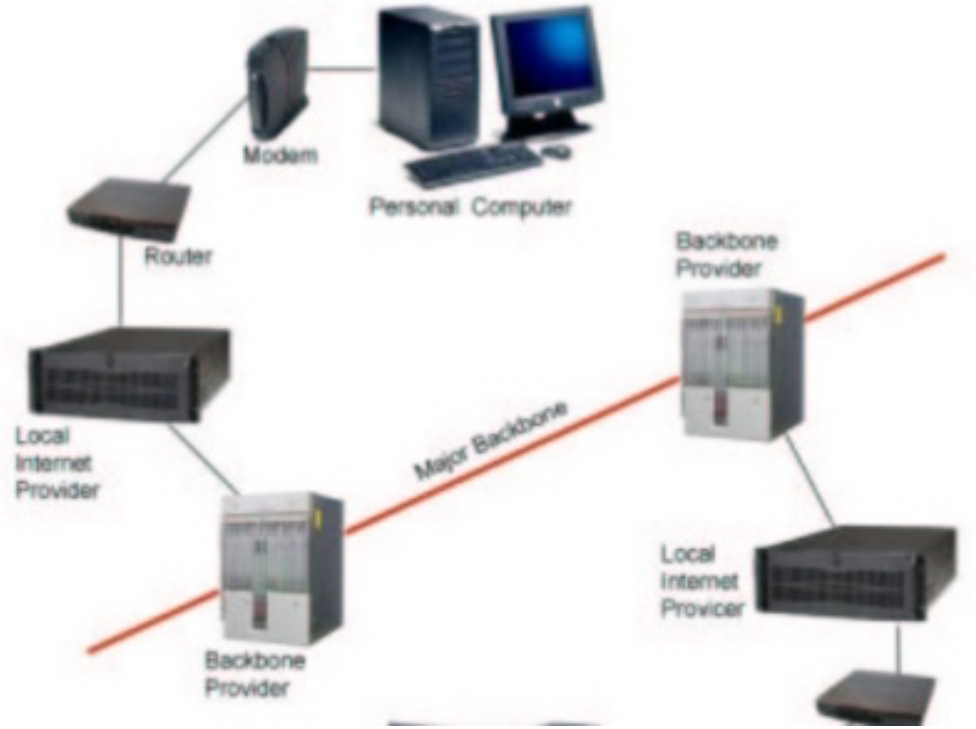
A SERVER FARM



INTERNET BACKBONE



EXCHANGING INFORMATION OVER THE INTERNET



INTERNET VS WORLD WIDE WEB

What is the World Wide Web?

A massive collection of digital documents in the form of HTML pages that are accessed over the Internet. Communication is based on Hypertext Transfer Protocol (HTTP).

THE FIRST EVER WEB PAGE

World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.
Help
on the browser you are using
Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)
Technical
Details of protocols, formats, program internals etc
Bibliography
Paper documentation on W3 and references.
People
A list of some people involved in the project.
History
A summary of the history of the project.
How can I help ?
If you would like to support the web..
Getting code
Getting the code by anonymous FTP , etc.

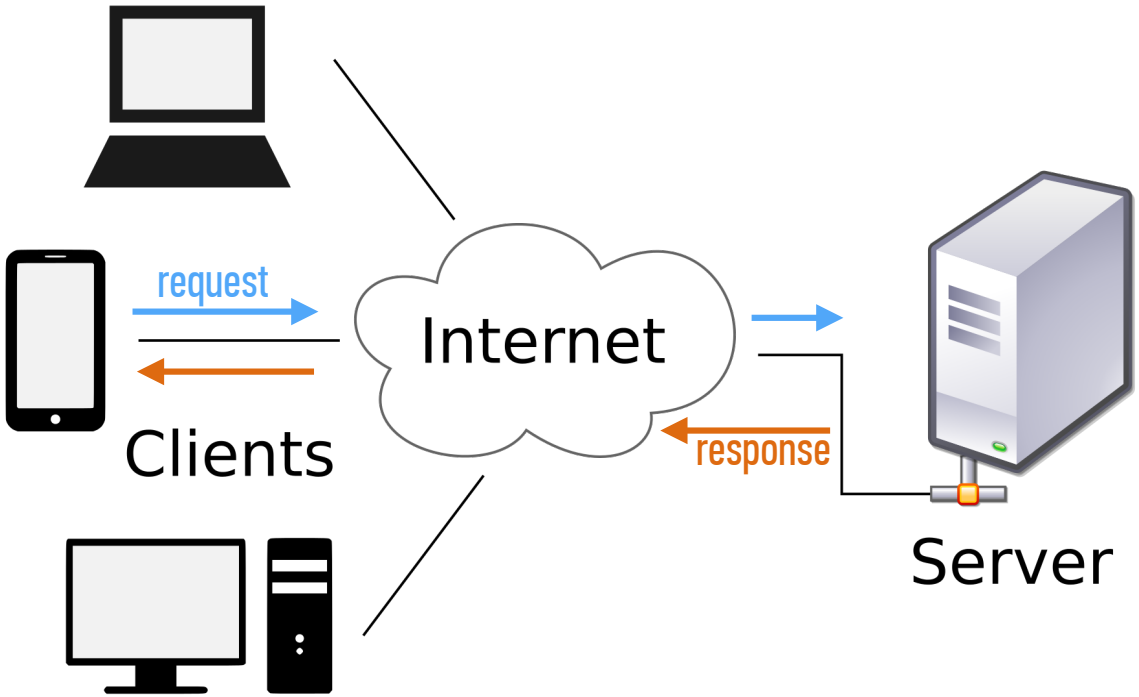
INTERNET VS WORLD WIDE WEB

Name some things you use the Internet for that are not part of the Web

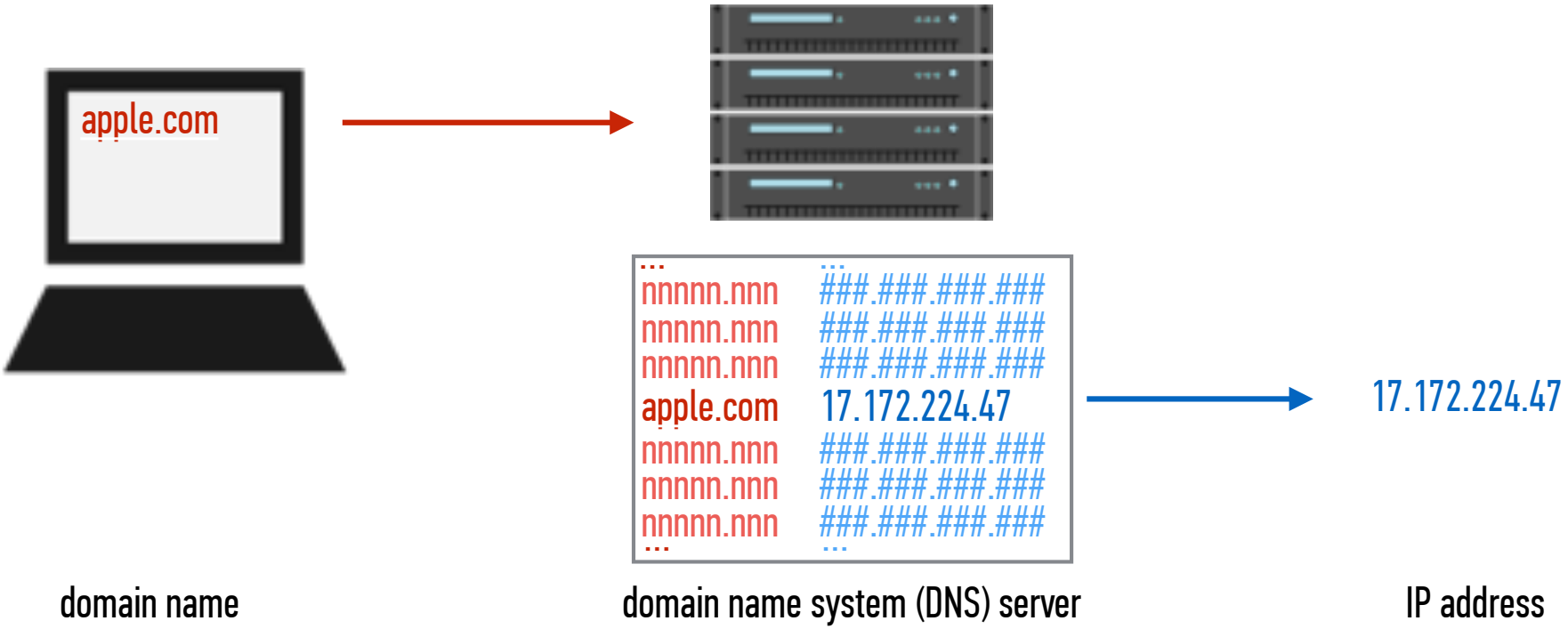
- Email
- Skype/GoogleTalk/FaceTime
- Dropbox/cloud storage
- Pandora/music streaming

BREAK (5 MINUTES)

THE CLIENT-SERVER MODEL



HOW DO YOU REACH A SPECIFIC SERVER?



EXERCISE: DNS

SET UP SLACK

We'll be using Slack to register attendance and communicate during class

- Visit slack.com/downloads to download the application
- Sign up using your email and join our class Slack organization

jsd3gasf

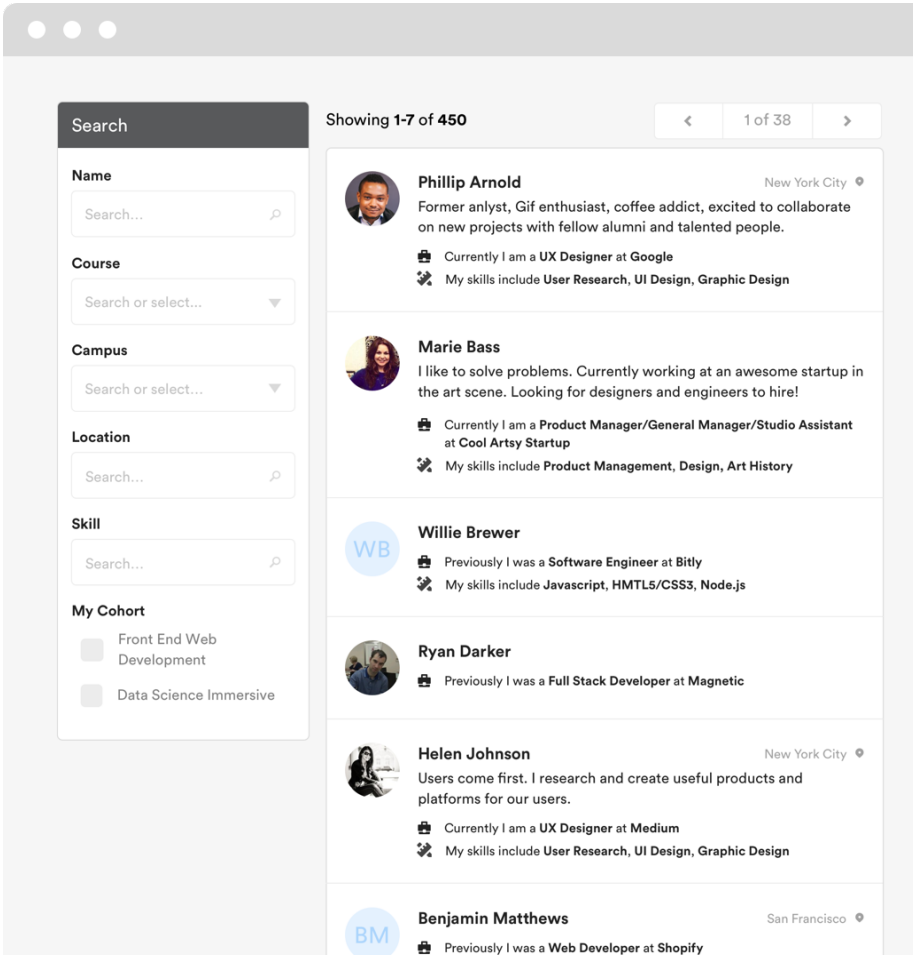
- Upload a profile picture to Slack

GA DIRECTORY

The GA Directory is a place for students, alumni, and instructors to connect

- Find your classmates
- Reach out to alumni and instructors
- Hire talent based on skills and experience

directory.generalassemb.ly



BREAK (5 MINUTES)

TERMINAL (COMMAND LINE)

- Mac: Open the Terminal app (Applications > Utilities > Terminal)
- Windows: Open Command Prompt (Start Button > type `cmd`)

HOMEBREW (BREW)

- Package manager (Mac only)
- Software that helps you install other software

GIT & GITHUB

- Code versioning software
- Collaborate and keep track of code

NODE & NPM

- Node: for running JavaScript from the command line
- npm: package manager for JavaScript

VISUAL STUDIO CODE

- Text editor
- Other options:
  - Sublime Text
  - Atom

INSTRUCTIONS

WARNING: Problems getting your environment configured come with the territory

See Slack for a link to the instructions

https://github.com/JS-SF-3/00-installfest/blob/master/installation.md

THINKING LIKE A PROGRAMMER

pseudocode

- Outline of a program in plain English
- No real rules
- Lets you concentrate on the flow of the program without being distracted by the details of a particular programming language

EXERCISE: PSEUDOCODE

NEXT CLASS PREVIEW

The Command Line

- Work with files/directories via the terminal window
- Create a Git repository and push/pull changes
- Run basic JavaScript code on the command line

PLEASE COMPLETE AN EXIT TICKET

Q&A